

AIR EMISSION INVENTORY RESULTS

PRESENTED TO
WICHITA SEDGWICK COUNTY
AIR QUALITY IMPROVEMENT
TASK FORCE

OVERVIEW

- Air Inventory Contractor -
Pechan/Integrated Solutions, Inc. team
- Scope of Work - County Wide Inventory for
Mobile and Area Sources utilizing EPA
protocol and standard engineering practices

AIR INVENTORY SCOPE OF WORK

- Conduct Inventory
 - Ozone Precursors: VOC and NO_x
 - Annual and Ozone Season Day Emission Rates
- Sources
 - On Road Mobile Sources
 - Off Road Mobile Sources
 - Area Sources

AIR INVENTORY SCOPE OF WORK

- Limited Resources (Best Bang for Buck)
- Draft Methodologies; Submit for Approval
- Calculate Emissions Based on Approved Methodologies

AIR INVENTORY SCOPE OF WORK

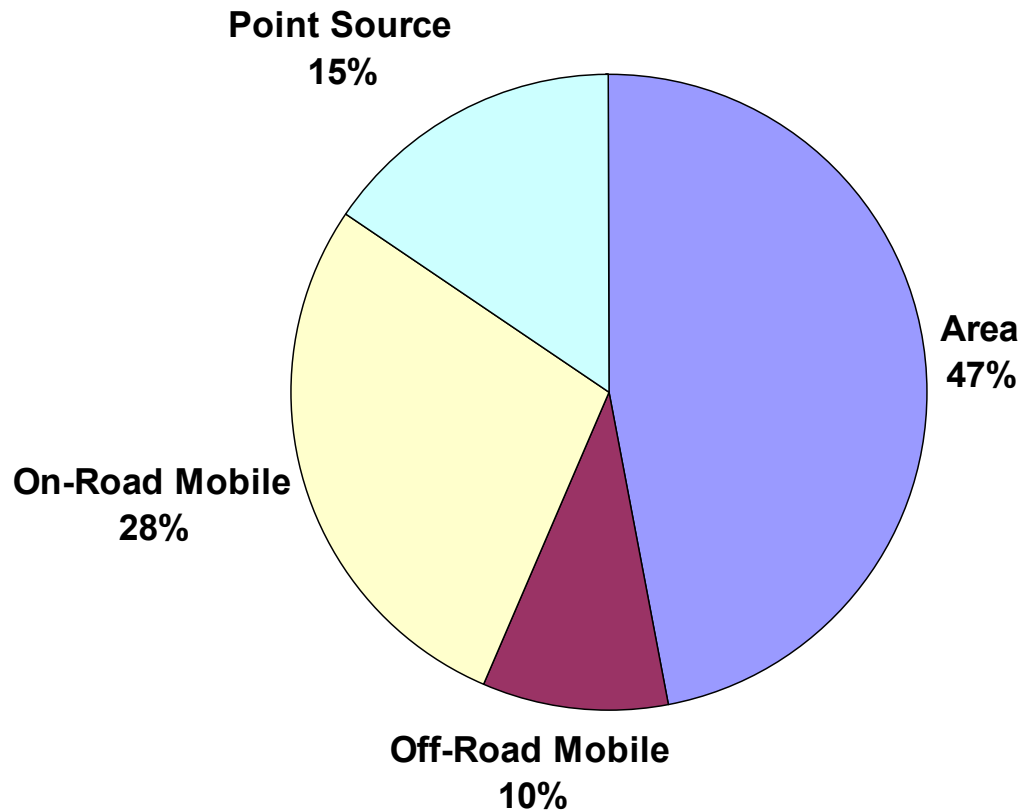
Jan, 2002 - Initiated Work

March-May, 2002 - Methodologies Approved

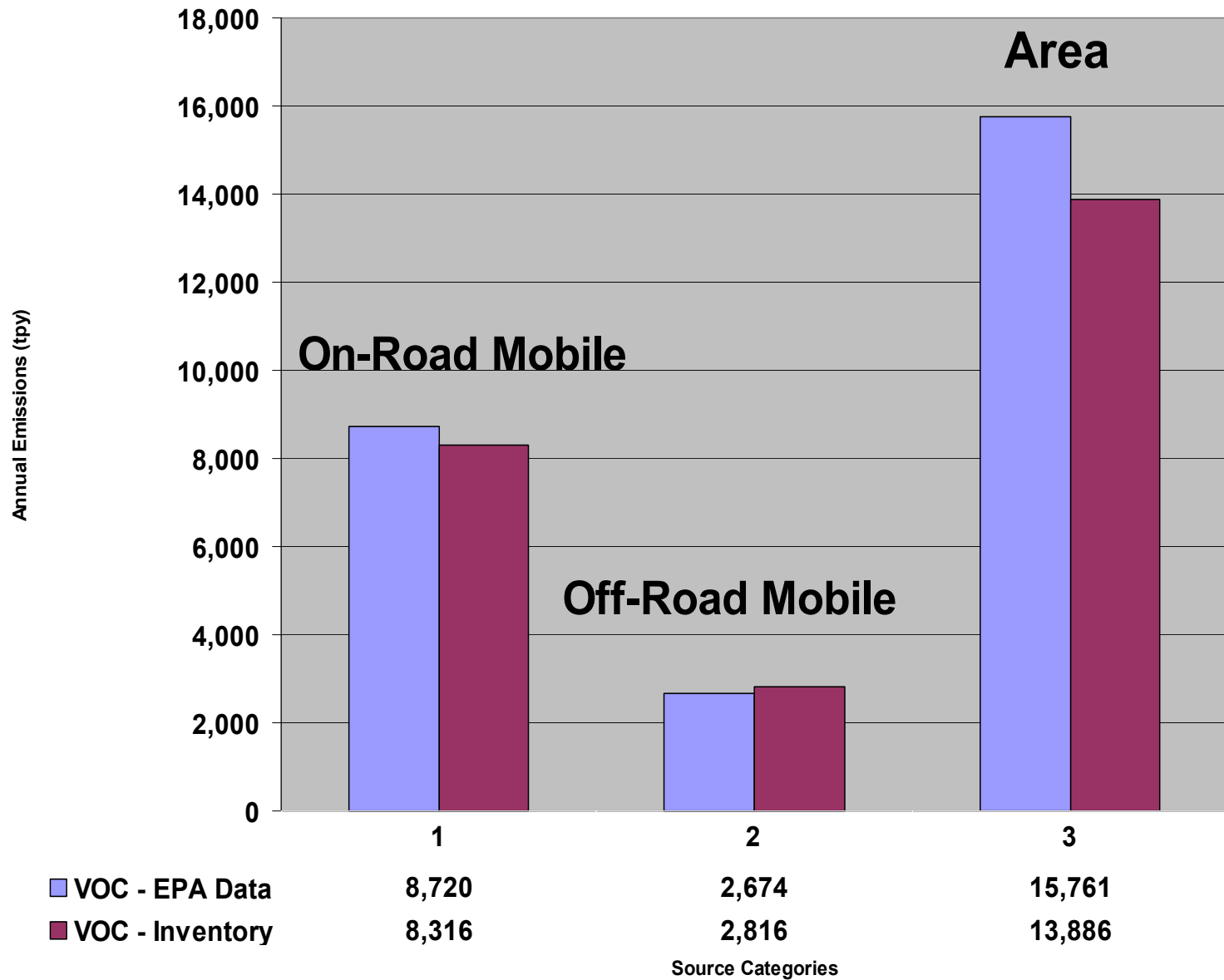
March-June, 2002 - Prepared Calculations

July-Sept, 2002 - Prepared Draft and Final
Reports

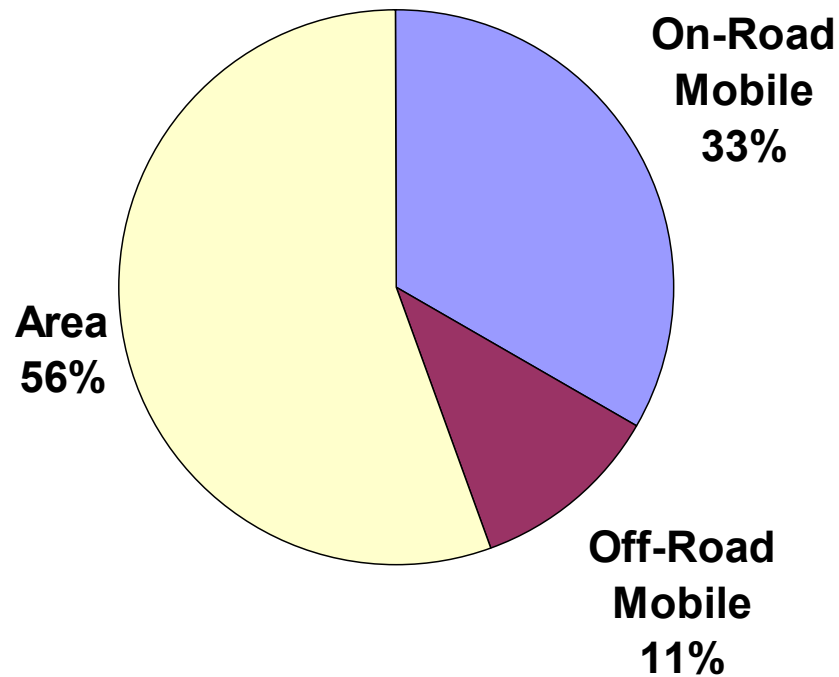
Annual VOC Emissions



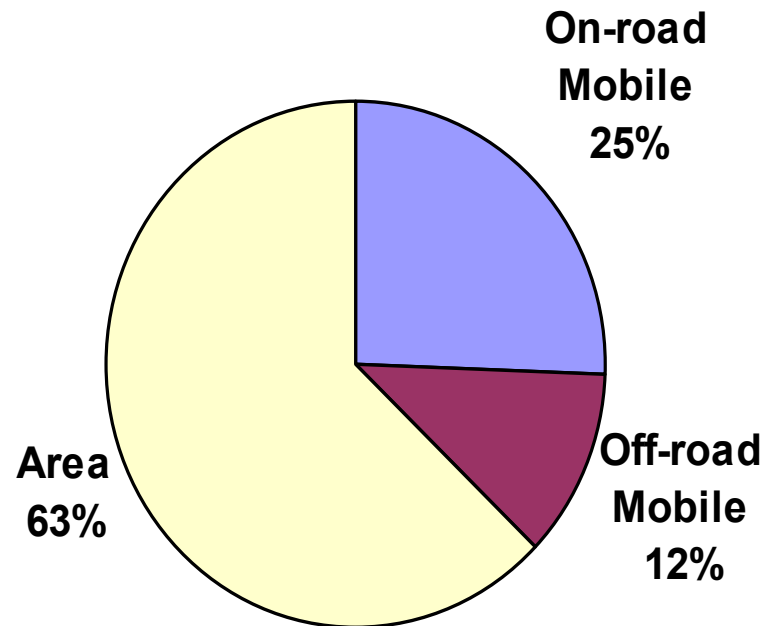
Annual VOC vs EPA Data



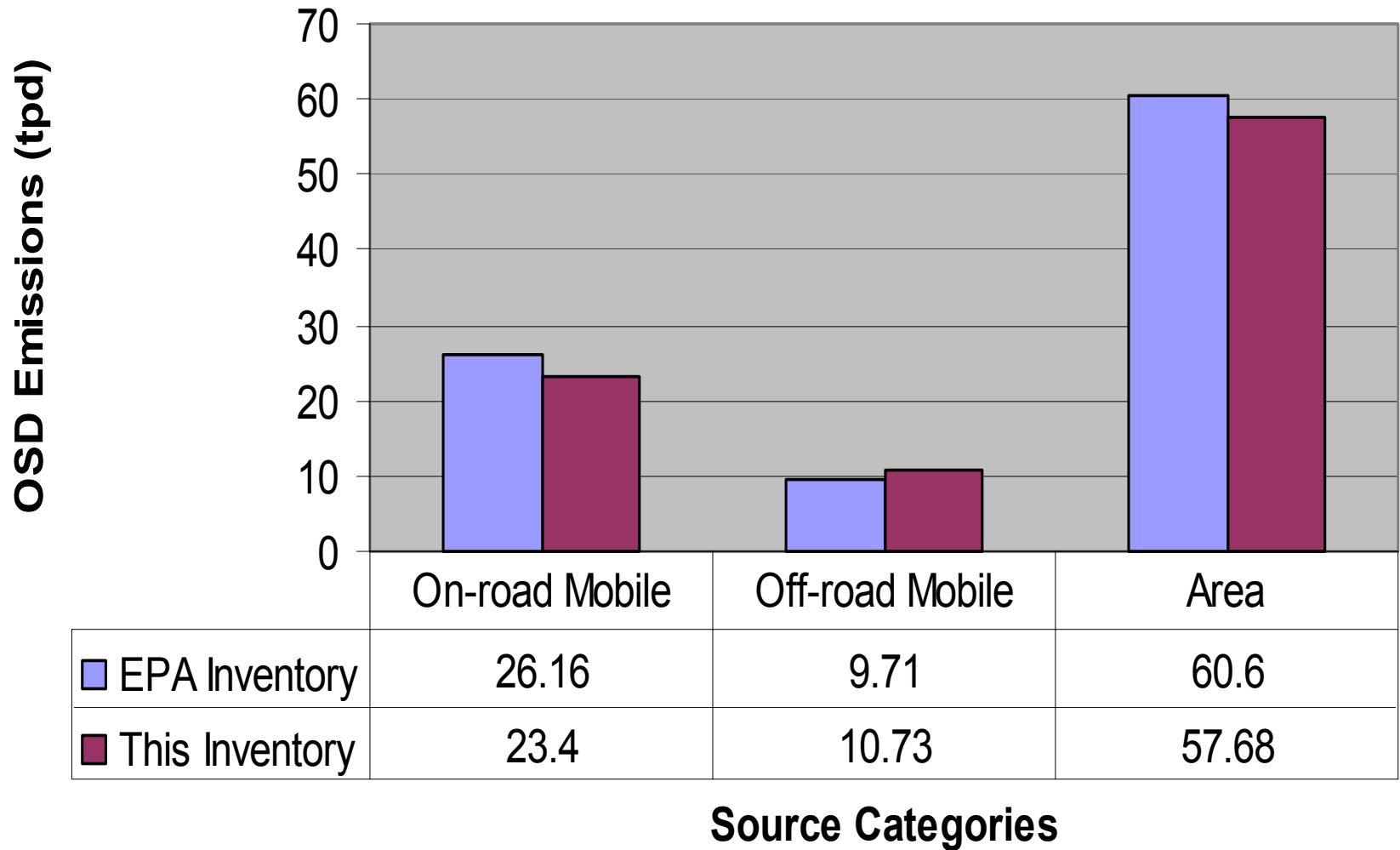
Annual VOC Emissions



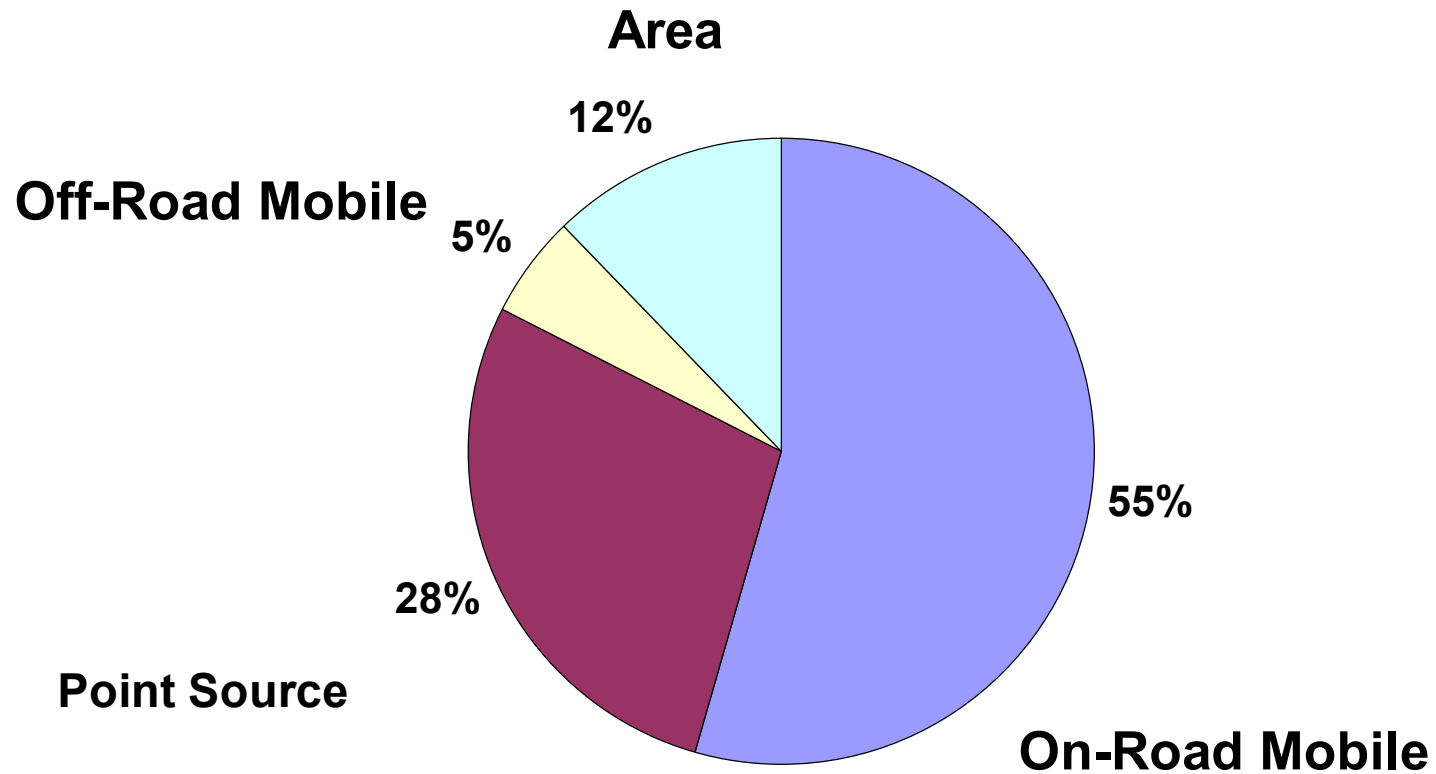
OSD VOC Emissions



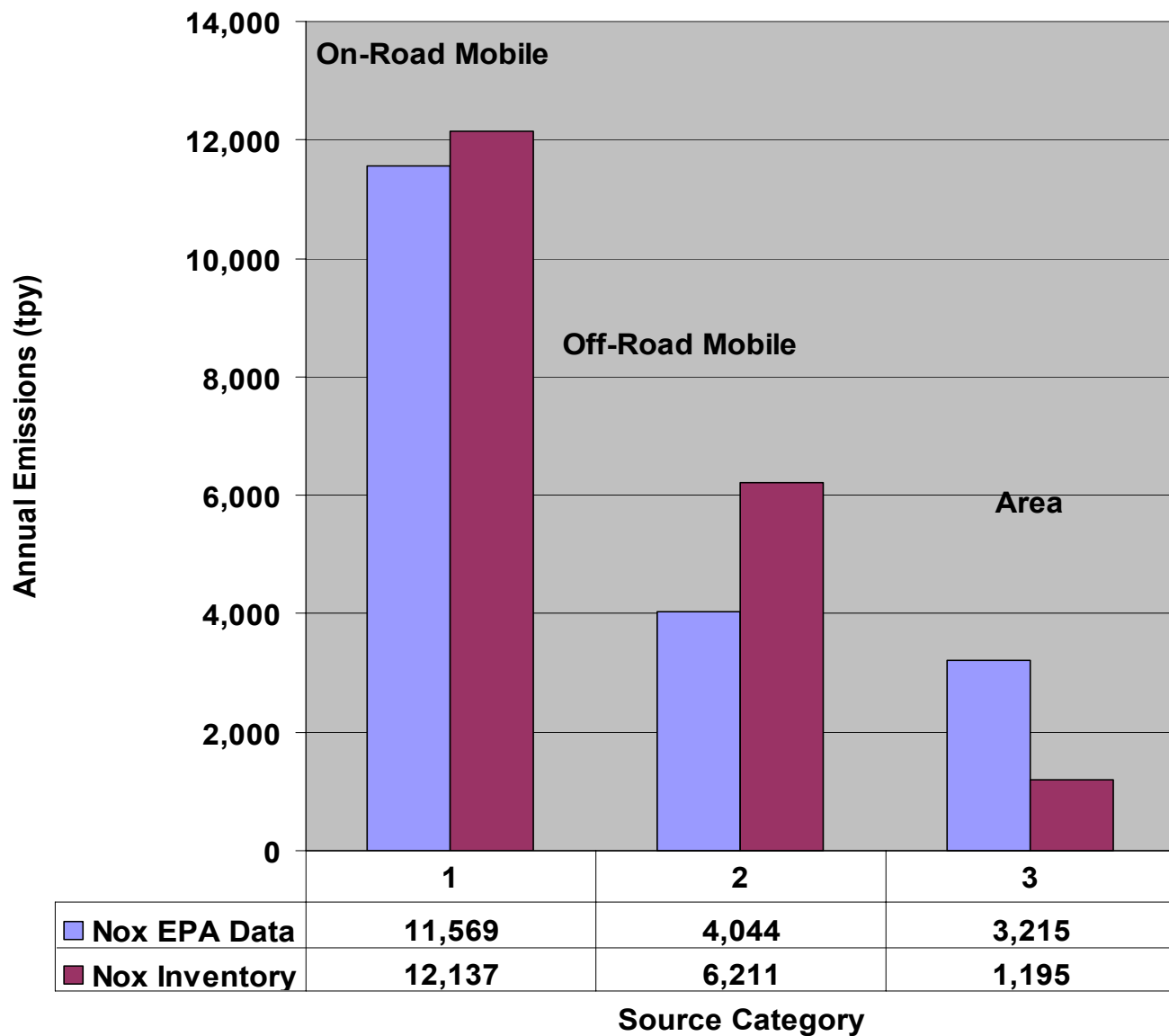
OSD VOC vs. EPA Data



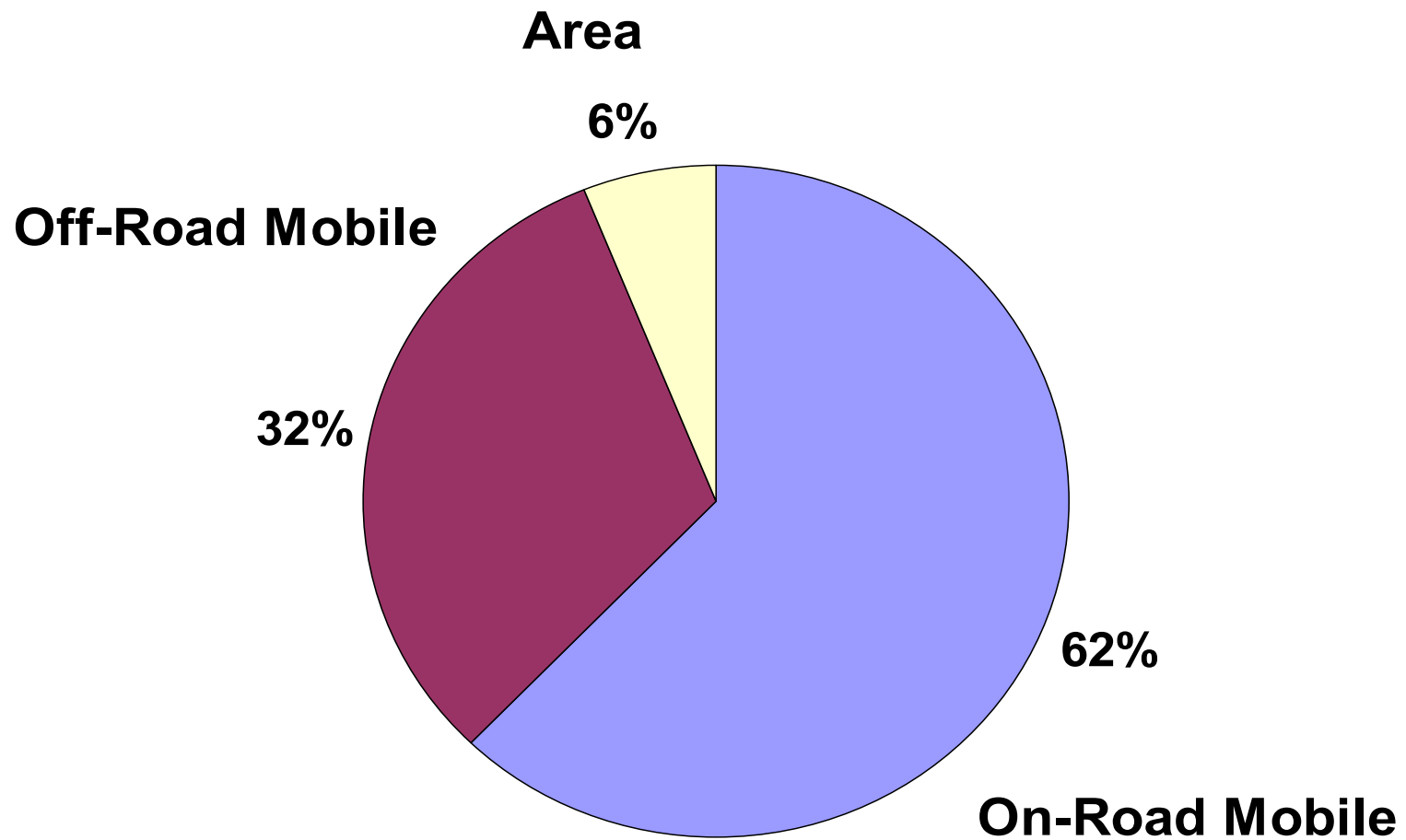
Annual NOx Emissions



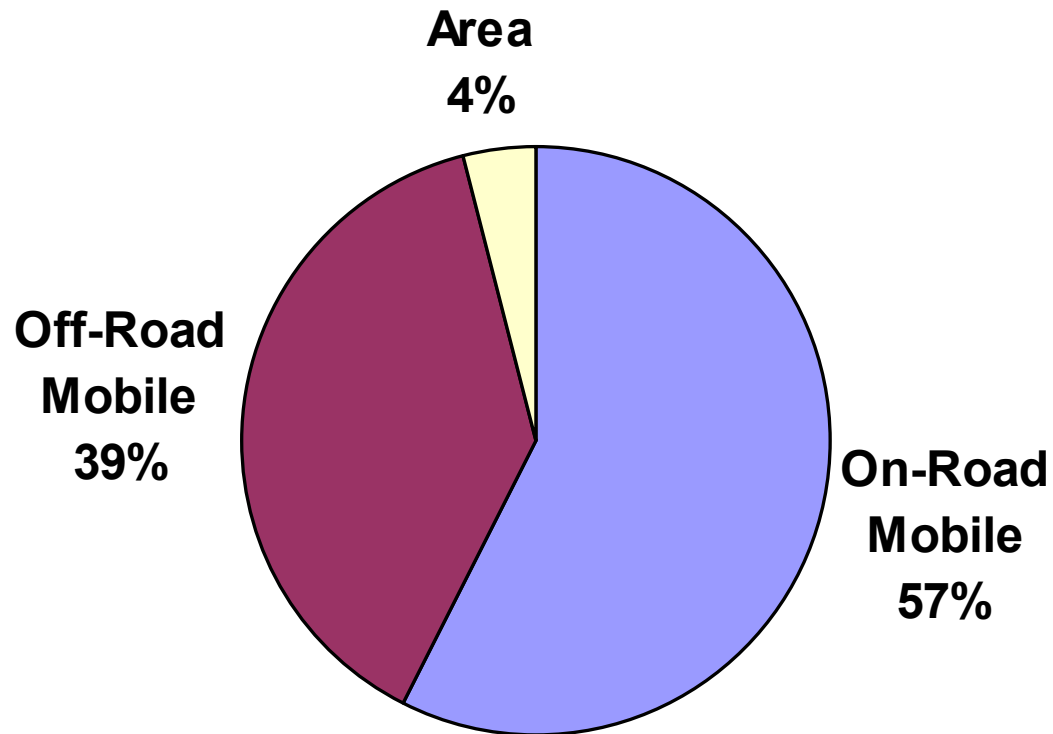
Annual NOx vs EPA Data



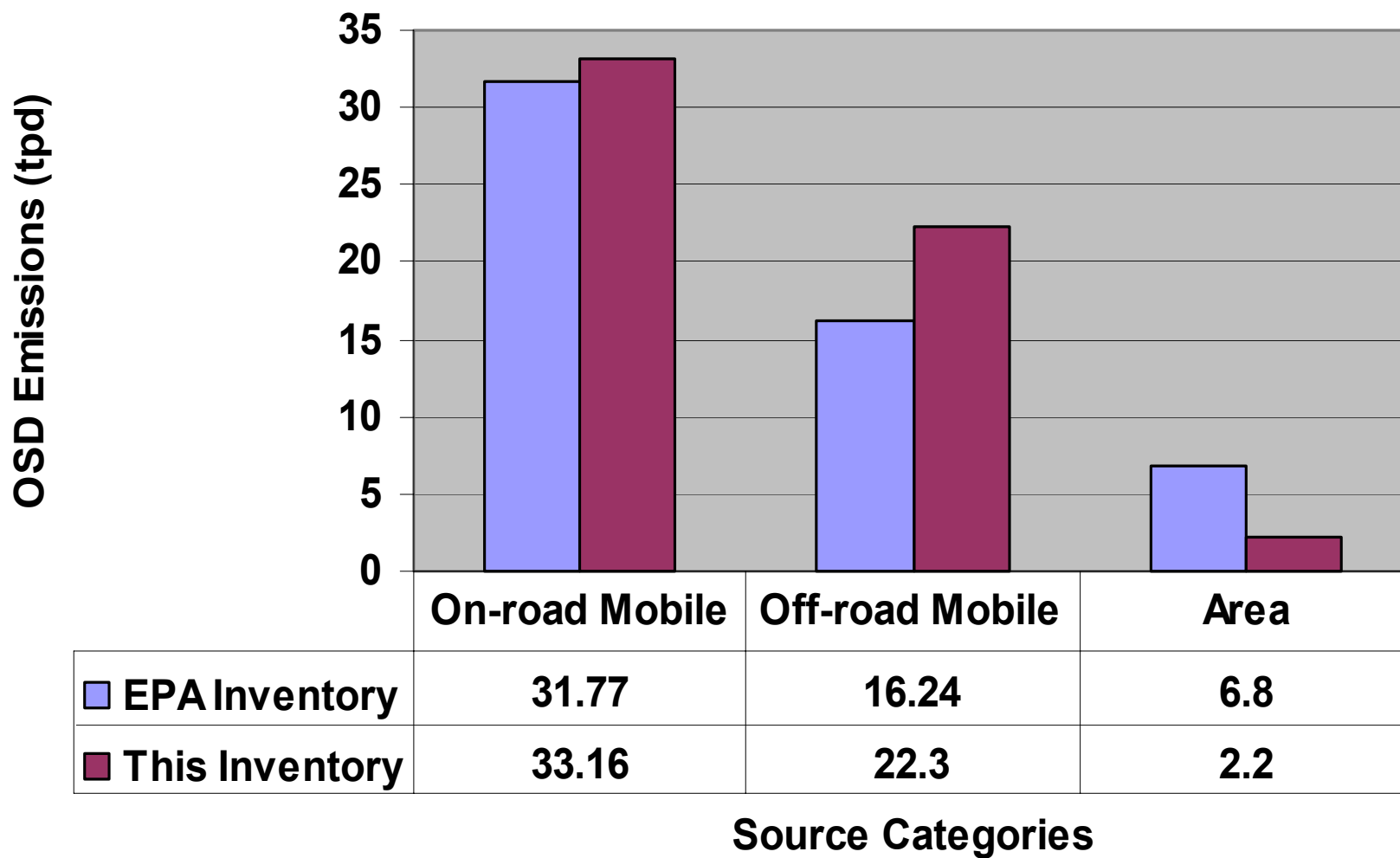
Annual NOx Emissions



OSD NO_x Emissions



OSD NO_x vs. EPA Data



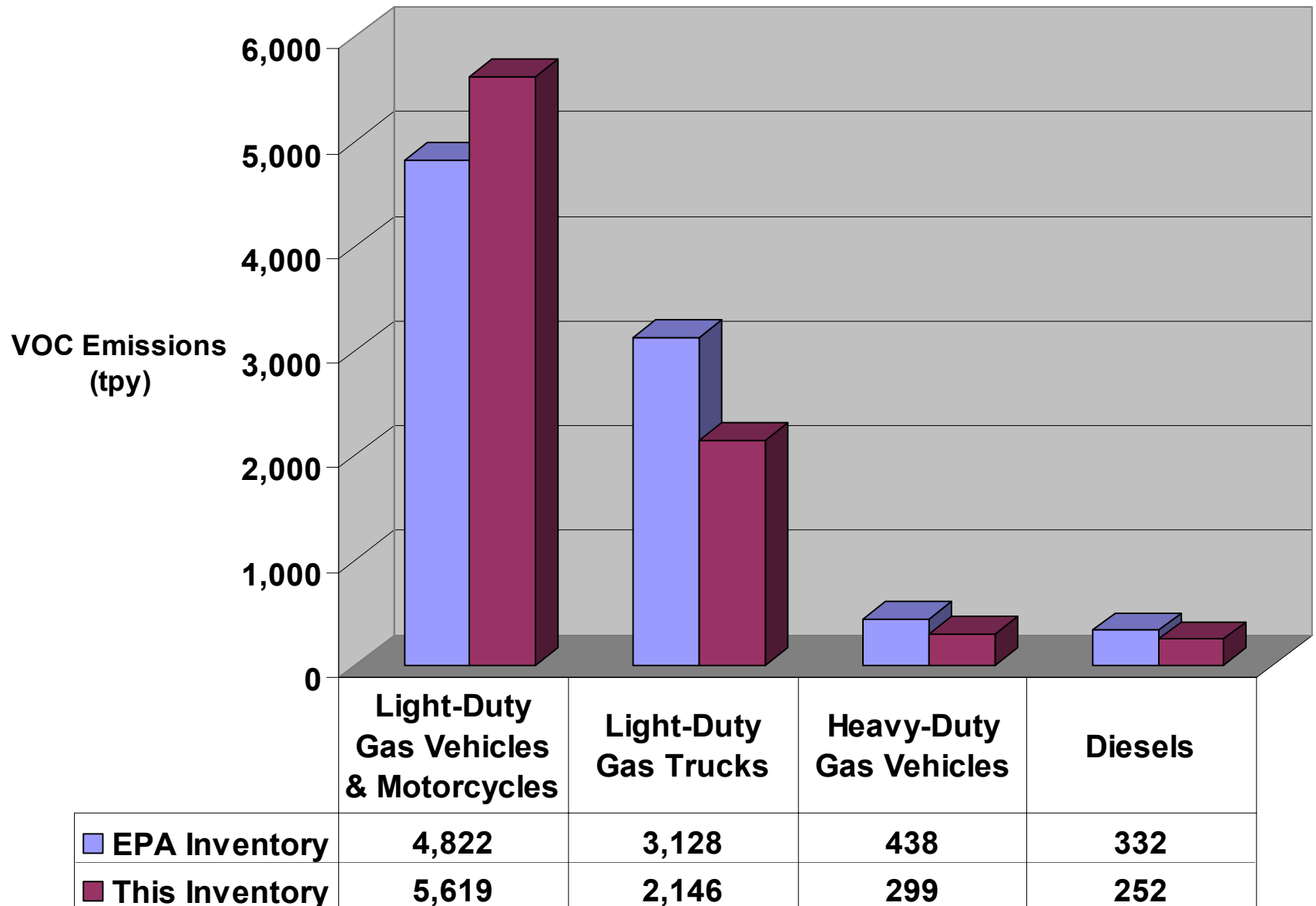
AIR INVENTORY

On-Road Mobile

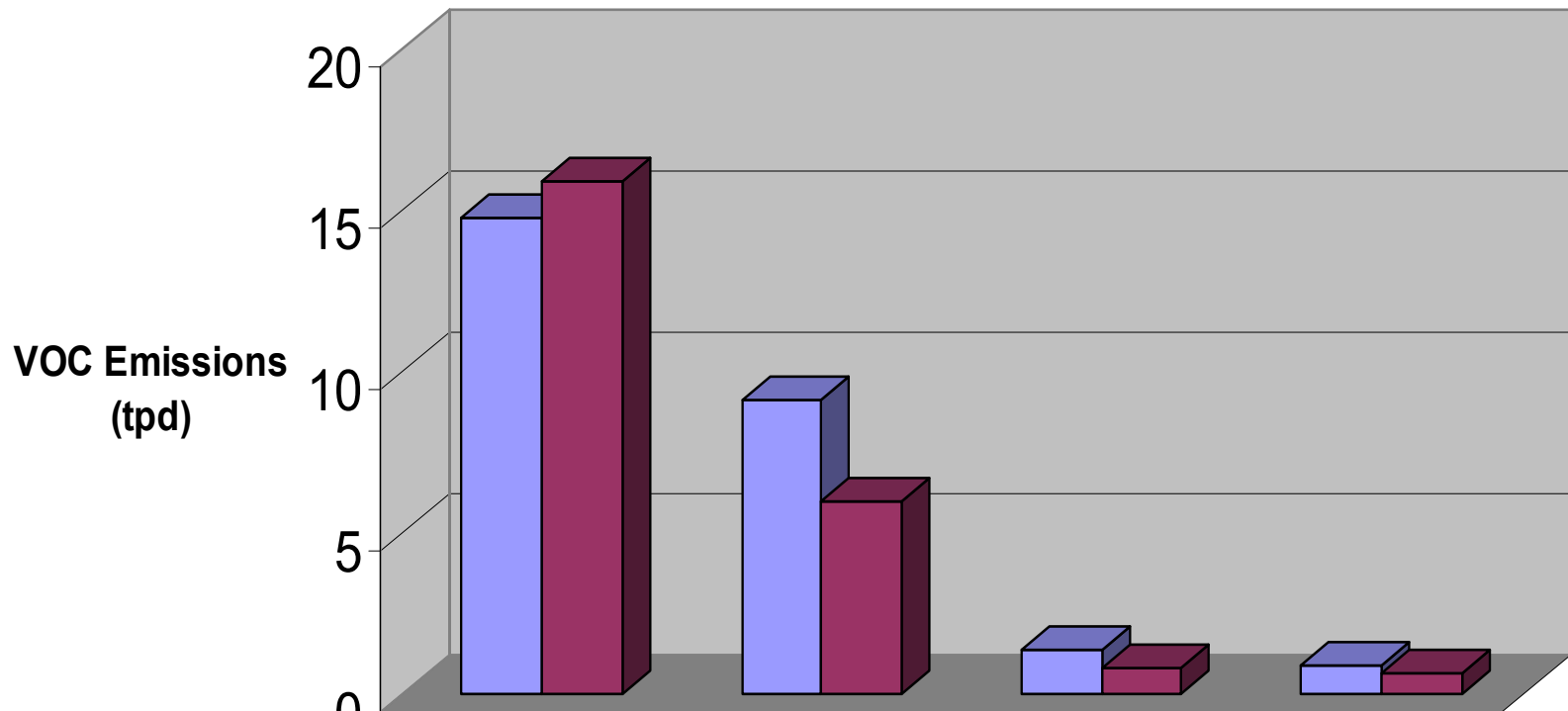
Sources

- Light-Duty Gas Vehicles, Motorcycles, & Trucks
- Heavy-Duty Gas Vehicles
- Diesels

On-Road Mobile Annual VOC Emissions

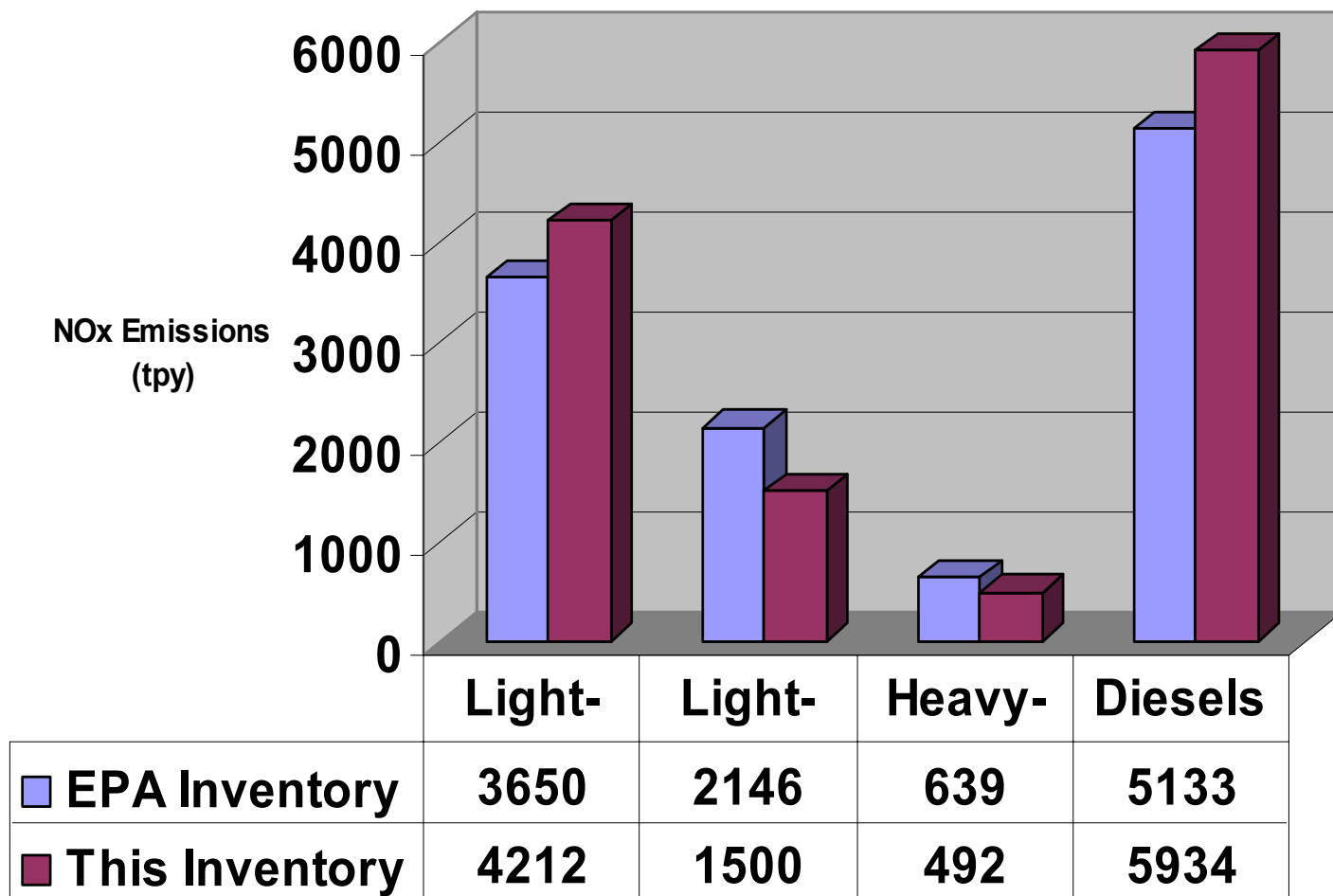


On-Road Mobile OSD VOC Emissions

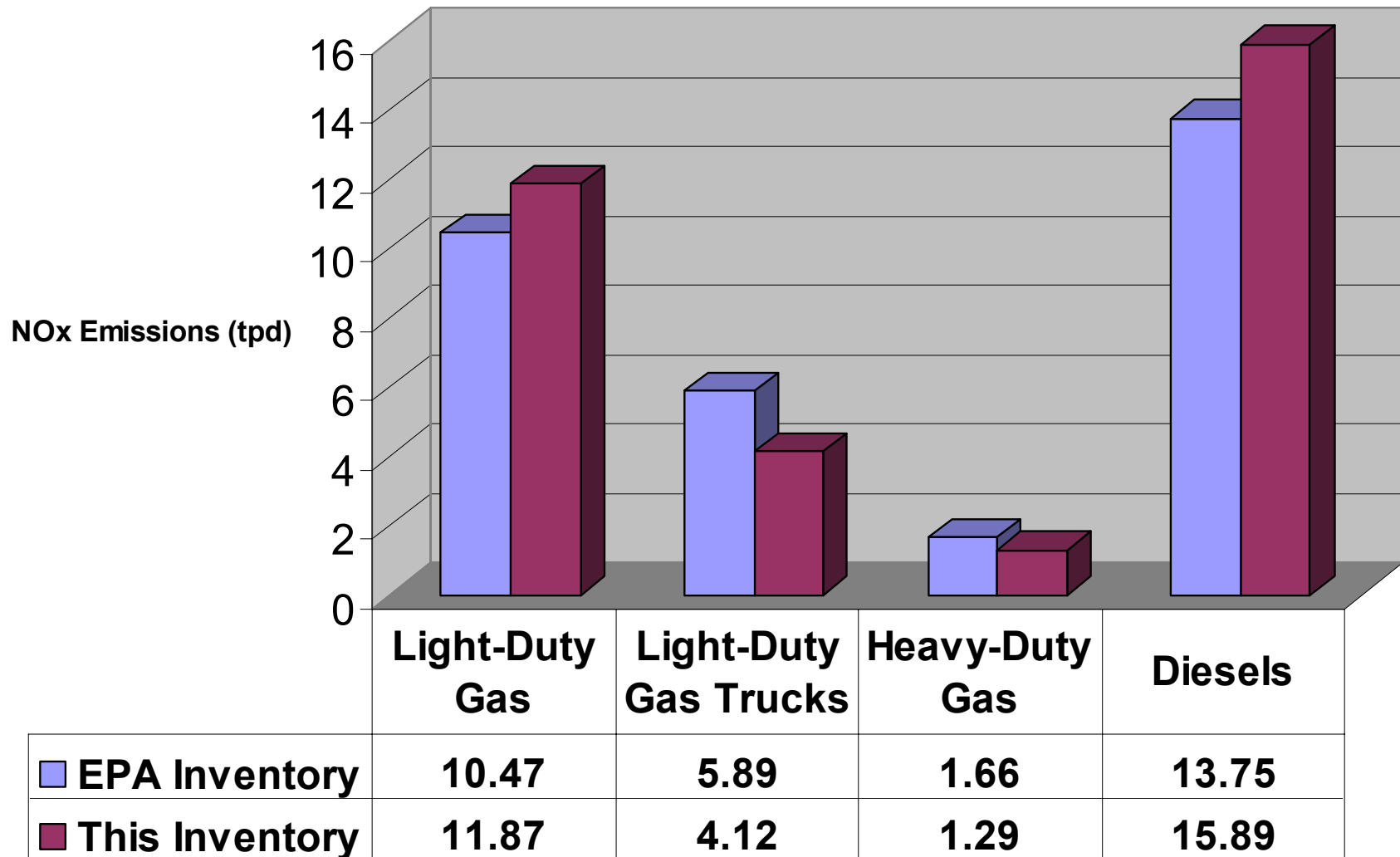


■ EPA Inventory	14.78	9.14	1.36	0.89
■ This Inventory	15.9	5.97	0.85	0.68

On-Road Mobile Annual NOx Emissions



On-Road Mobile OSD NOx Emissions



AIR INVENTORY

On-Road Mobile Sources

DATA USED

COUNTY SPECIFIC DATA

- | | |
|----------------------------|----------------------------|
| • VMT Data | Yes (1999 data) |
| • Vehicle Age Distribution | No |
| • Temperature Data | Yes |
| • Fuel Volatility | Yes |
| • Vehicle Speeds | Yes (3 interstate studies) |

AIR INVENTORY

On-Road Mobile Sources

DATA USED

- VMT Data
- Vehicle Age Registration
- Temperature Data
- Fuel Volatility
- Vehicle Speeds

OPPORTUNITIES TO IMPROVE DATA

Continue Data Collection

Use (Soon To Be Available)
Software

N/A

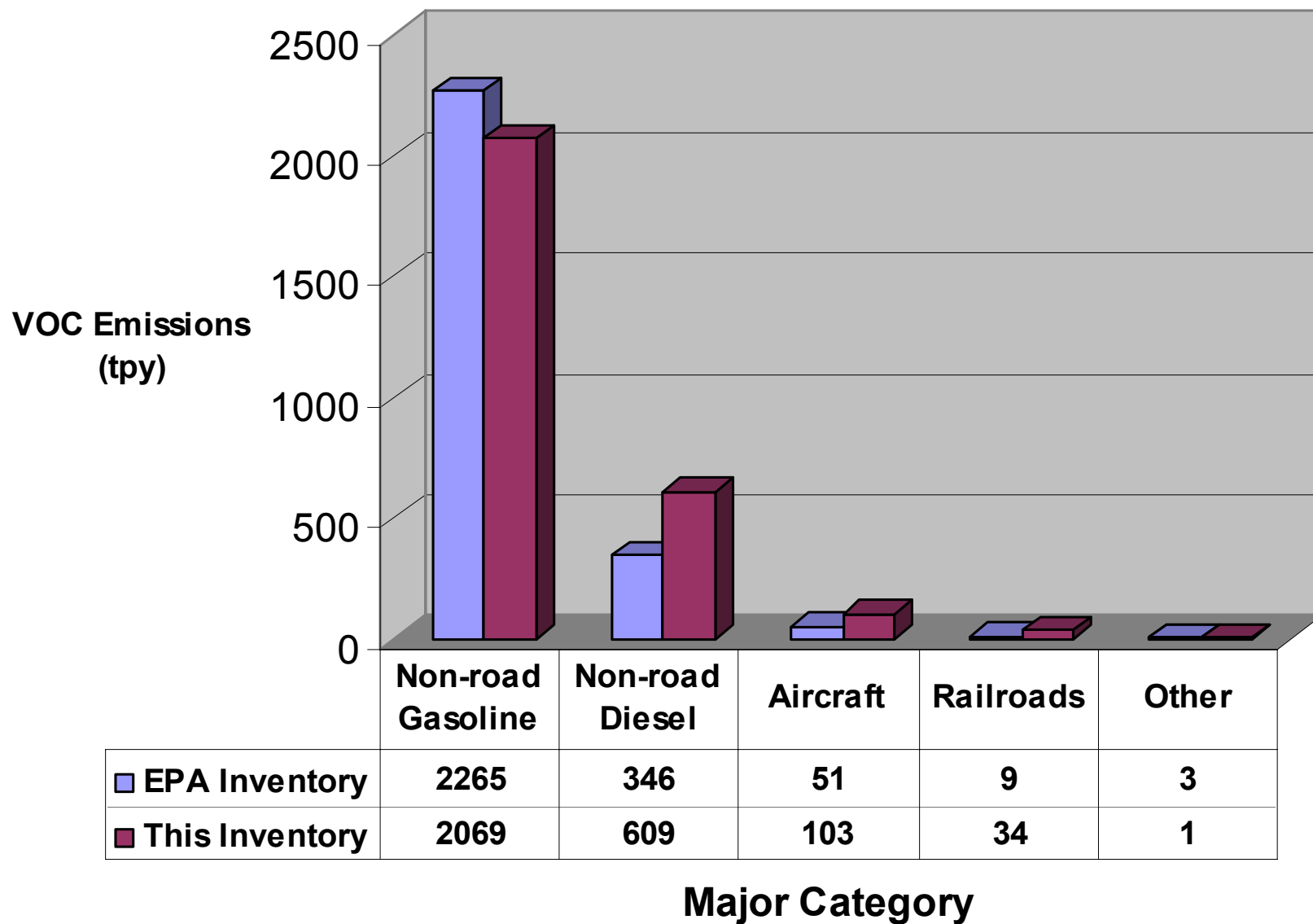
N/A

More Diverse Studies on
Vehicle Speed

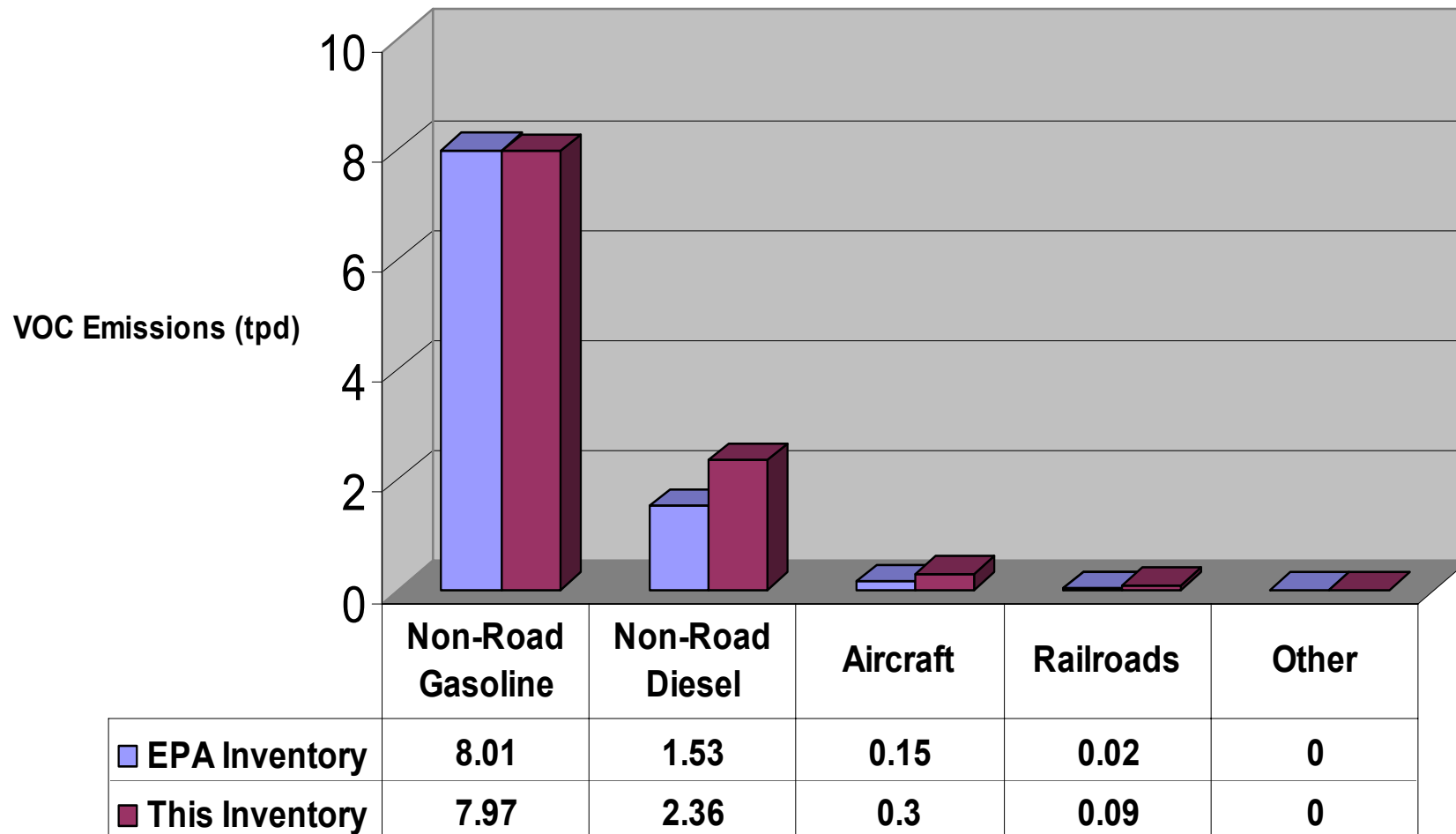
Air Inventory - Off-Road Mobile

- Ag Equipment
- Airport Support
- Light Commercial
- Construction & Mining
- Industrial
- Railroad Maintenance
- Recreational
- Aircraft
- Locomotives
- Lawn & Garden
- Commercial Marine

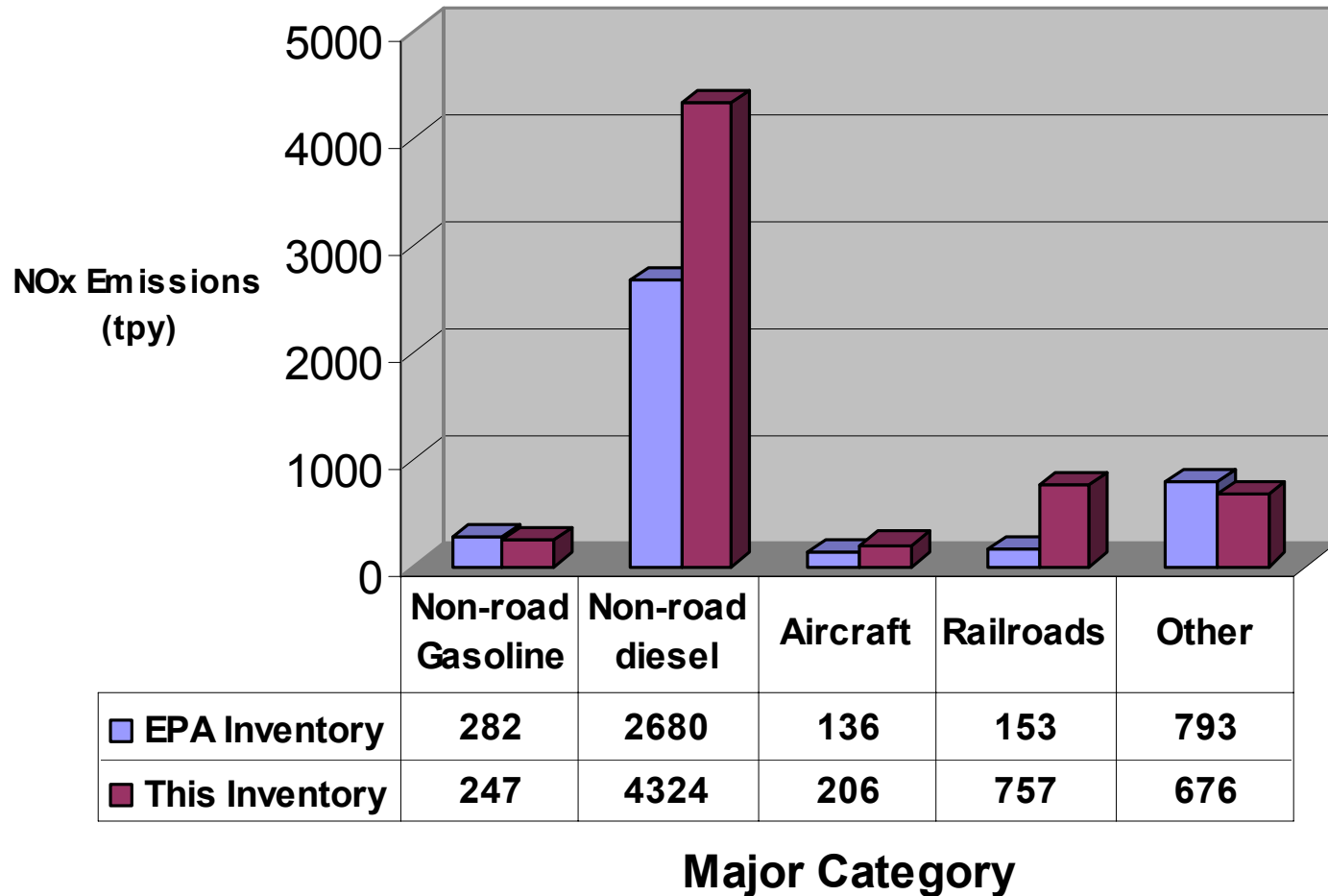
Off-Road Mobile Annual VOC Emissions



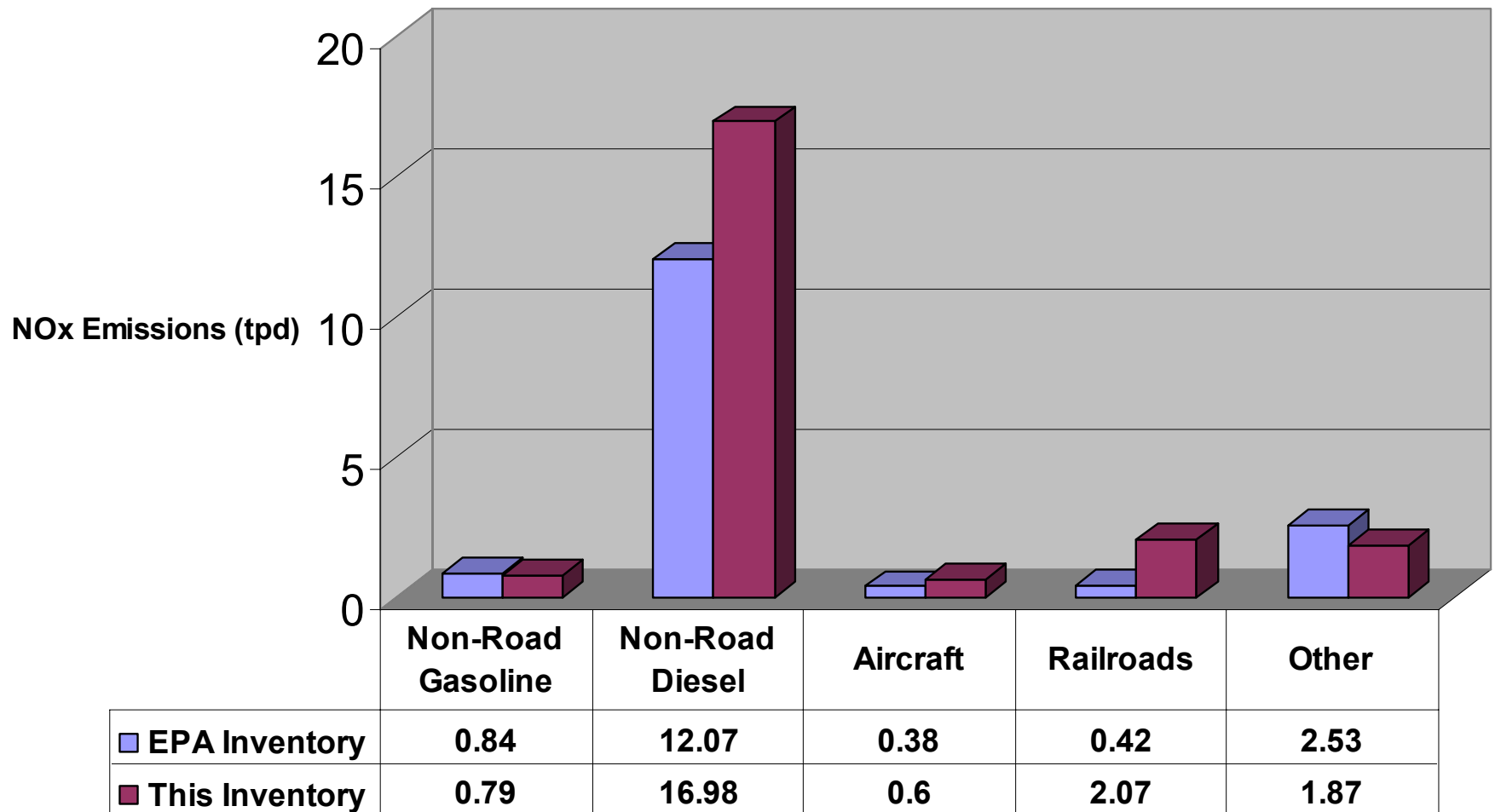
Off-Road Mobile OSD VOC Emissions



Off-Road Mobile Annual NOx Emissions



Off-Road Mobile OSD NOx Emissions



AIR INVENTORY

Off-Road Mobile Sources

DATA USED

Non-Road Model

- Lawn/Garden Equipment & Snowblowers
- Recreational Marine Equipment
- Aircraft Ground Support
- Railroad Maintenance Equipmt.
- All Other Categories

Aircraft

- # of Landing/Take-off
- Fleet Make-up

Locomotive

- Amount of Fuel Consumed

COUNTY SPECIFIC DATA

Local/State Data Sets Available

Yes, Ratio of Surface Water Area

Yes, Based on Landing/Take-off

Yes, Based on Locomotive Emiss.

No, Model Defaults Used

Yes, Obtained from Airports

Yes, Obtained from Airports

Obtained from RR Companies

AIR INVENTORY

Off-Road Mobile Sources

DATA USED

Non-Road Model

- Future Modelling

Aircraft

- Landing/Take-off
- Fleet Make-up

Locomotive

- Fuel Consumed

OPPORTUNITIES TO IMPROVE DATA

Track and Use Most Recent Model
Survey Highest Emitting Source(s)

Airports Collecting Aircraft &
Engine-Specific LTO Data

Continue to Obtain Data from
Local RR Companies

Air Inventory - Area Sources

Fuel Combustion

- Industrial
- Commercial
- Residential

Chemical, Petro, Ag
Industries
Solvent Use

Petroleum Storage/Use

- Bulk/Transport
- Services Stations

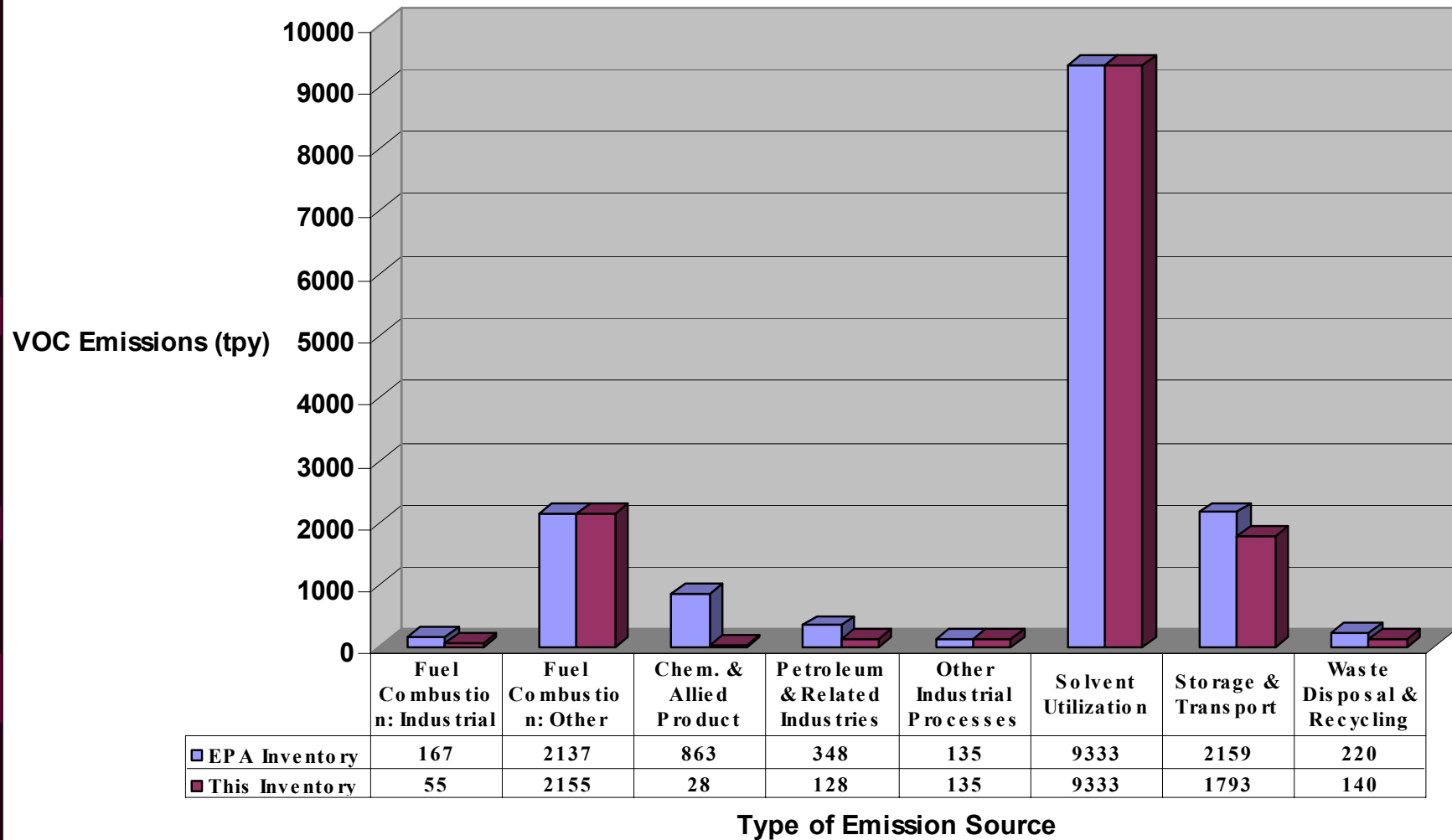
Waste/Open Burning

Crop Burning

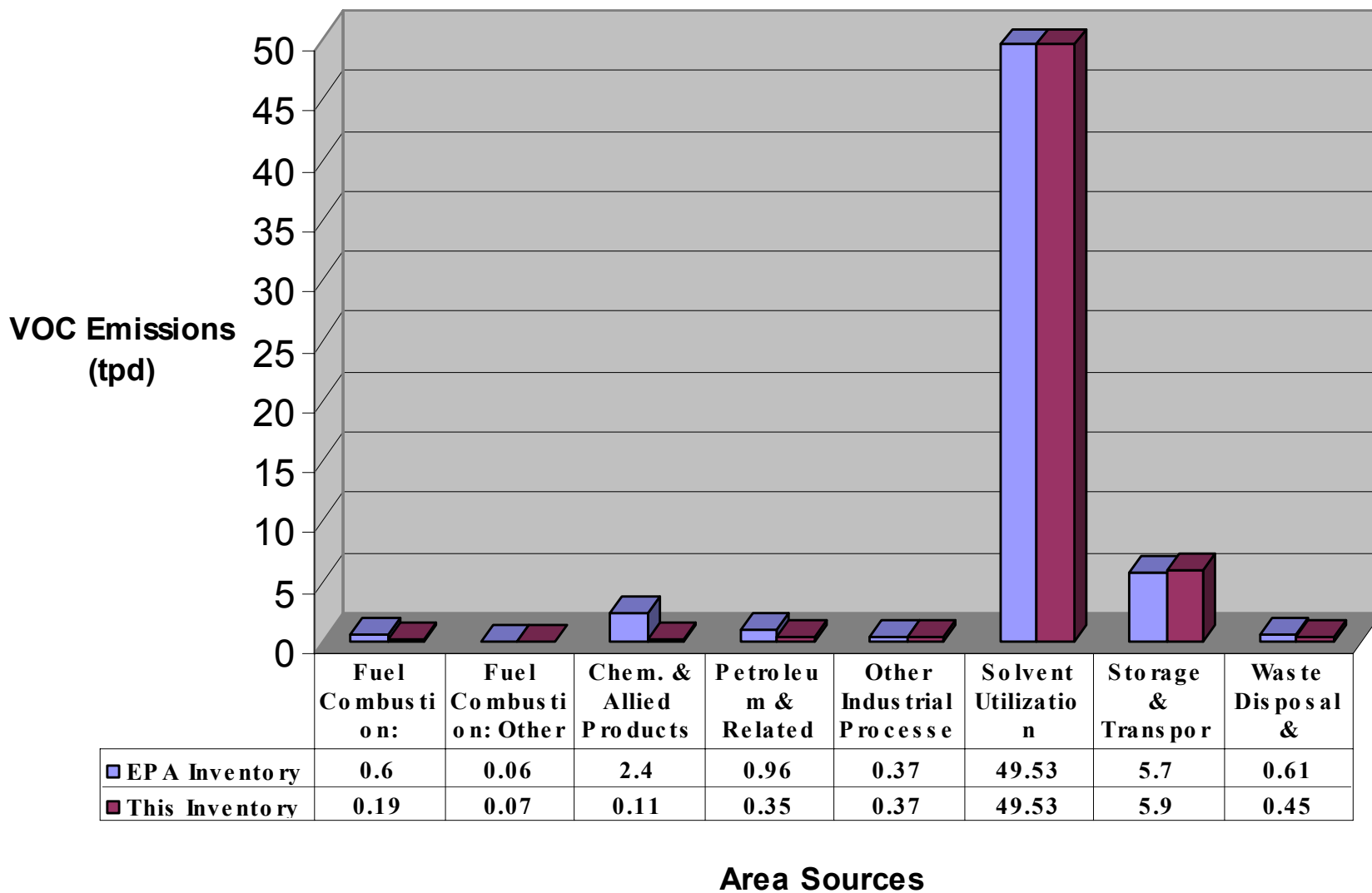
Land Clearing Burning

Structural/Forest Fires

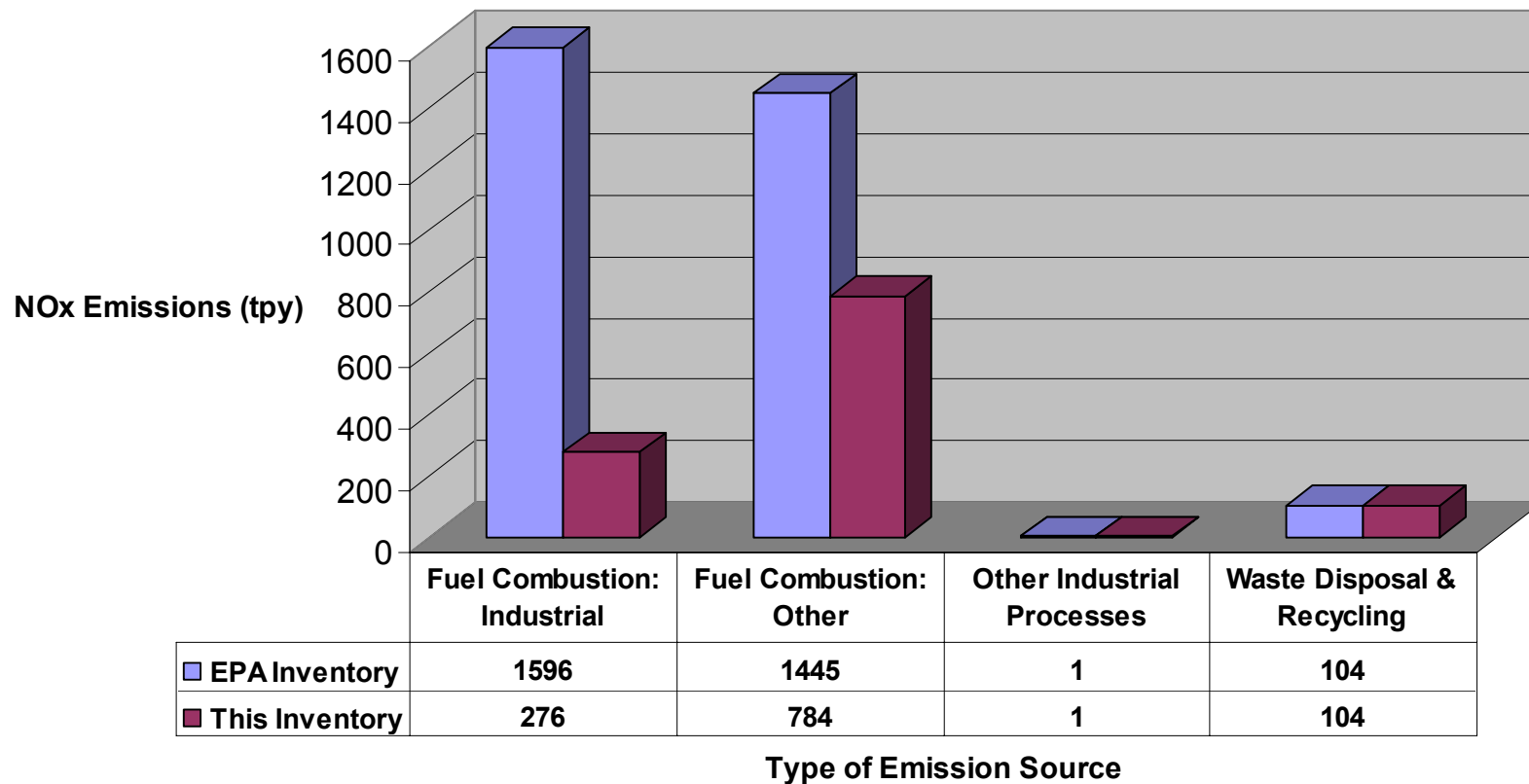
Area Source Annual VOC Emissions



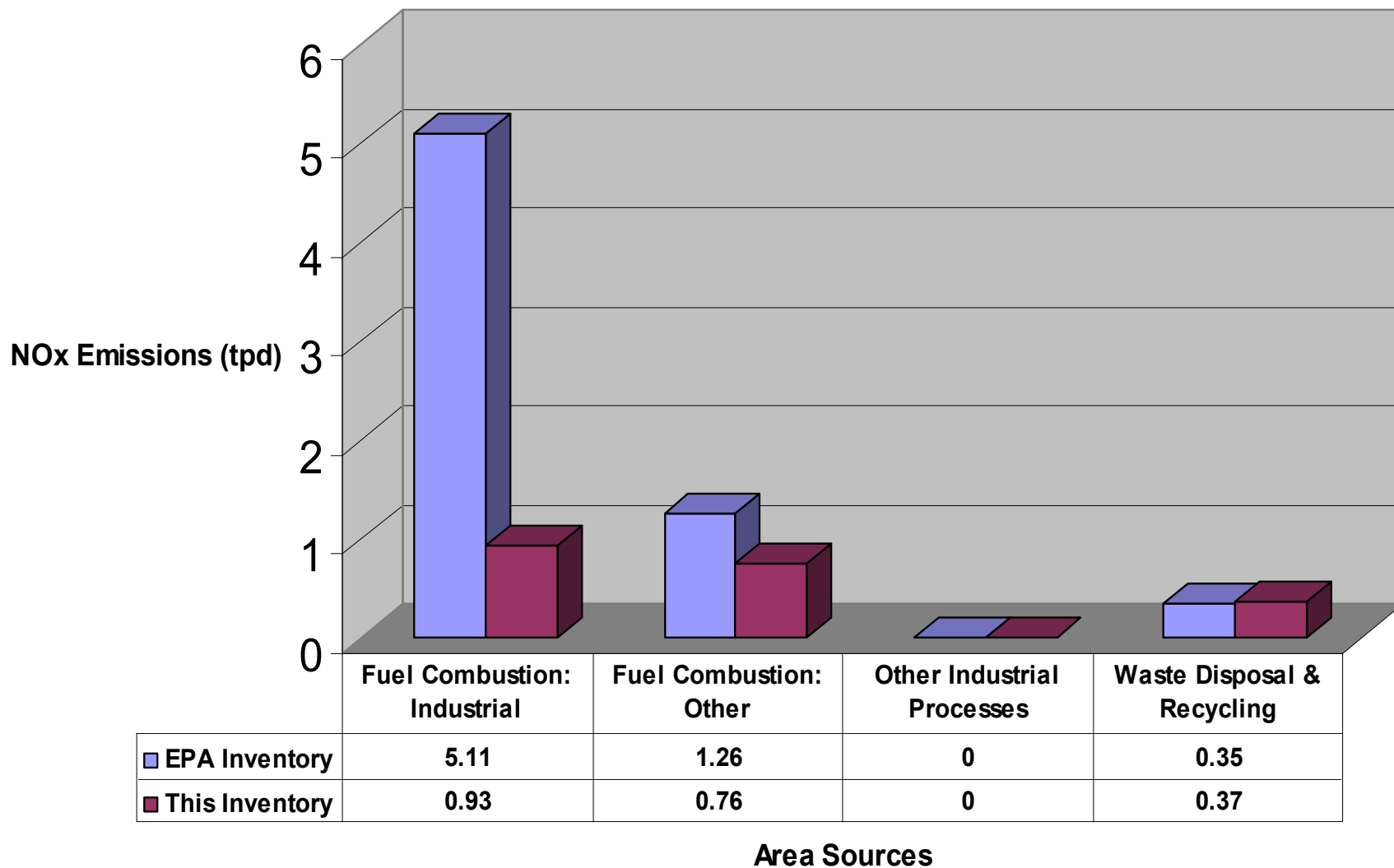
Area Source OSD VOC Emissions



Area Source Annual NOx Emissions



Area Source OSD NO_x Emissions



AIR INVENTORY

Area Sources

DATA USED

Solvent Use

- Quantities Consumed

Fuel Combustion

- Local Delivery Data

Storage/Transport of Gasoline

- # of Bulk/Tanks/Size/Methods
- Service Station Throughput

Chemical/Allied Industry

- Quantity of Fugitive Losses

COUNTY SPECIFIC DATA

No, EPA Values Used

Yes

Yes, Used Representative Data

Yes, KS Consumption Allocated to
County Service Station Sales

Yes, SARA 313 Data

AIR INVENTORY

Area Sources

DATA USED

Solvent Use

- Quantities Consumed

Fuel Combustion

- Local Delivery Data

Storage/Transport of Gasoline

- # of Bulk/Tanks/Size/Methods
- Service Station Throughput

OPPORTUNITIES TO IMPROVE DATA

Incorporate New EPA Estimates,
Collect Local Data

Continue to Obtain Local Data

Survey of Actual Tank Parameters
Work with State to Obtain
Sales/Tax Data

AIR INVENTORY

Consultant Recommendations

- Continue to Improve Inventories
 - Use EPA On-Road/Off-Road Models
 - Collect Local Data, Continuing to Look for Opportunities for Improvement
 - Consider Future Research Items in Technical Report
 - Incorporate Solvent Emissions Based on New EPA Procedure When Released

AIR INVENTORY

Consultant Recommendations

- Track Ozone Levels
- Review Ozone Reduction Strategies Based on Results of Study and Ozone Levels
- Maintain Task Force/or Community Group to Champion Strategy

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